

REMARKS

The Final Office Action mailed April 8, 2005, has been received and reviewed. Claims 1 through 28 are currently pending in the application. Claims 1 through 28 stand rejected. Applicants propose to cancel claims 20 and 21, amend claims 1-4, 7, 22 and 25-28, and respectfully request reconsideration of the application as proposed to be amended herein.

Claim 1 is proposed to be substantially amended to address the Examiner's stated position with respect to Baker et al., and the remaining claims are, in turn, proposed to be amended to correspond with claim 1 as now presented. The specific amendatory elements of claim 1 and their significance are discussed below.

35 U.S.C. § 102(e) Anticipation Rejections

Anticipation Rejection Based on U.S. Publication No. 2003/0096507 A1 to Baker et al.

Claims 1 through 8, 20 through 23, 25, 27 and 28 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Baker et al. (U.S. Publication No. 2003/0096507 A1). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicant wishes to express his appreciation to the Examiner for his detailed amplification of his reasoning in reasserting the rejection using the Baker et al. reference, and Applicant proposes to amend claim 1 (and other, dependent claims correspondingly) to address the Examiner's concerns.

Applicant proposes to amend claim 1 to further distinguish over the Baker et al. reference. Specifically, claim 1 as proposed to be amended recites, *inter alia*:

- a) providing a substrate of a first material having a bare, relatively rough surface topography comprising peaks and valleys;
- (b) applying a layer of a second material to the bare surface of sufficient depth to cover the peaks,

fill the valleys and provide an exposed, planar surface of the second material of substantially lesser roughness than the bare surface and extending thereover;

c) removing the first material and the second material from the substrate from a side thereof proximate the bare surface by removing the second material covering the peaks until the second material and the first material comprising the peaks are concurrently exposed; and

d) thereafter, removing the first material and the second material at substantially equal rates.

Applicant acknowledges that the reference teaches covering one or both surfaces of a semiconductor substrate with protective layers (films). However, the reference does not even allude to any surface roughness of a bare surface of the substrate relative to surfaces provided by a protective layer, does not describe filling valleys and covering peaks so as to provide a surface of substantially lesser roughness than the bare surface (in other words, the protective layers of the reference may merely follow the topography of the underlying substrate), does not describe first removing the protective layer (second material) until the substrate (first material) and protective layer (second material) are concurrently exposed, and thereafter removing both the protective layer (second material) and the substrate (first material) at substantially equal rates (or at any relative rates). It appears that the reference merely teaches removal of the protective layers or films, and not of the substrate. Further, even assuming *arguendo* that some of the substrate is removed when an overlying protective layer is removed, there is no description of the removal rates of the two materials being substantially equal. Applicant notes the Examiner's broad interpretation of the term "substantial" as qualifying removal rates of the two materials, but respectfully asserts that this term, in conjunction with the proposed amendment to claim 1, clearly distinguishes over the reference.

Accordingly, the rejection of claim 1 as proposed to be amended is without a sound basis, and Applicant respectfully request withdrawal thereof.

Claims 2 through 8 are allowable as depending from claim 1. Further, the elements of claims 3 and 4, those of removing additional first material after all the second material has been removed, does not appear to be described in the reference. Applicant says "appears" as it seems that an entire series of drawings is missing from the published patent application, being FIGS. 6A through 6D, but the corresponding text does not reference any substrate material removal, but

only layer or film removal.

Claims 20 and 21 have been canceled, rendering the rejection with respect thereto moot.

Claims 22, 23, 25, 27 and 28 are allowable as depending from claim 1.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Publication No. 2003/0096507 A1 to Baker et al. as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Japanese Publication No. 359104523 to Imai

Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker et al. (U.S. Publication No. 2003/0096507 A1) as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Imai (Japanese Publication No. 359104523). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

Claims 9 and 10 are allowable as depending from claim 1 as proposed to be amended, as the combination of references fails to teach or suggest all of the claim limitations of claim 1, alone or in combination with claims 9 or 10. Further, while appreciating the Examiner's explanation as to motivation to combine Imai with Baker et al., Applicant respectfully asserts that, since bonding other structures to a substrate does not appear to be related to the invention of

Baker et al., that the motivation asserted to combine the references is lacking.

Obviousness Rejection Based on U.S. Publication No. 2003/0096507 A1 to Baker et al. as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of U.S. Publication No. 2004/0110010 A1 to Buchwalter et al.

Claims 11, and 16 through 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker et al. (U.S. Publication No. 2003/0096507 A1) as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Buchwalter et al. (U.S. Publication No. 2004/0110010 A1). Applicants respectfully traverse this rejection, as hereinafter set forth.

Claims 11 and 16 through 19 are allowable as depending from claim 1 as proposed to be amended, as the combination of references fails to teach or suggest all of the claim limitations of claim 1, alone or in combination with any of claims 11 and 16 through 19. Further, while appreciating the Examiner's explanation as to motivation to combine Buchwalter et al. with Baker et al., Applicant respectfully asserts that, since bonding other structures to a substrate does not appear to be related to the invention of Baker et al., that the motivation asserted to combine the references is lacking.

Obviousness Rejection Based on U.S. Publication No. 2003/0096507 A1 to Baker et al. as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of U.S. Patent No. 6,235,387 to Bennett et al.

Claims 12 through 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker et al. (U.S. Publication No. 2003/0096507 A1) as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Bennett et al. (U.S. Patent No. 6,235,387). Applicants respectfully traverse this rejection, as hereinafter set forth.

Claims 12 through 15 are allowable as depending from claim 1 as proposed to be amended.

Obviousness Rejection Based on U.S. Publication No. 2003/0096507 A1 to Baker et al. as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Stanley Wolf et al. in

Silicon Processing for the VLSI Era

Claims 24 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker et al. (U.S. Publication No. 2003/0096507 A1) as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Stanley Wolf et al. in Silicon Processing for the VLSI Era.

Applicants respectfully traverse this rejection, as hereinafter set forth.

Claims 24 and 26 are allowable as depending from claim 1 as proposed to be amended. Further, the cited passage at Wolff does not, with respect to claim 24, teach more than already taught by Baker et al., that being merely the use of CMP. With respect to claim 26, the teachings of Wolff appear to be limited to removal of oxide spikes without significantly thinning the oxide on the “flat” areas. The Wolff excerpt reveals, as acknowledged by the Examiner, that CMP alone is not useful for planarization of the oxide-coated surface.

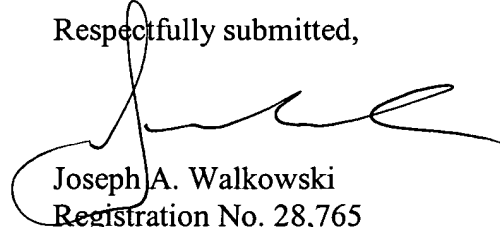
ENTRY OF AMENDMENTS

The proposed amendments to claims 1-4, 7, 22 and 25-28 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search. Finally, if the Examiner determines that the amendments do not place the application in condition for allowance, entry is respectfully requested upon filing of a Notice of Appeal herein.

CONCLUSION

Claims 1 through 19 and 22 through 28 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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